

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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5 TITLE: MATTRESS COVER WITH EXPANDABLE SIDEWALLS

SPECIFICATION

10 BACKGROUND OF THE INVENTION

FIELD OF THE INVENTION

15 The present invention relates generally to covers for mattresses, and more specifically, to a generally impermeable mattress cover with expandable sidewalls to fit mattresses of different thicknesses.

RELATED ART

20 Allergens and other irritants such as spores and dust mites can freely exist in mattresses, and can be the cause of allergic reactions to certain individuals. As such, it is often desirable to cover a mattress to protect same from allergens, dust mites, fluids, and other spoils. It is also desirable to protect mattresses from spills and other fluids, such as urine and blood. In locations where mattresses are frequently used, such covers are beneficial in preserving the life of the  
25 mattress and providing added comfort for users. Even at home, one can use such a cover to protect a mattress and extend its life. Indeed, by using a mattress cover to keep a mattress free of stains, one can assure that they comply with the warranty provided by the mattress manufacturers which are voided when mattresses are stained.

It is known in the art to provide covers for mattresses to protect same from the  
aforementioned fluids and allergens existing in the mattress. However, there do not exist any  
covers with expandable sidewalls that completely cover a mattress and allow the cover to be  
used on mattresses of different thicknesses. Rather, such covers must be made in numerous sizes  
5 or must be custom-manufactured to fit beds and/or mattresses of different thicknesses.

Accordingly, what is desirable, but has not heretofore been provided, is a generally  
impermeable mattress cover that completely surrounds a mattress and has expandable sidewalls  
to accommodate mattresses of different thicknesses.

## SUMMARY OF THE INVENTION

The present invention relates to a generally impermeable mattress cover that completely surrounds a mattress and has expandable sidewalls to accommodate mattresses of different thicknesses. The cover includes generally impermeable top and bottom walls that are attached at edges thereof to sidewalls. The sidewalls include inner and outer walls that are joined at edges thereof. The inner walls are generally impermeable and have a fixed height, and the outer walls are made of an elastic material. The inner walls have a height greater than the elastic outer wall when the outer wall is in a relaxed condition. When positioned on a mattress, the outer wall retains the inner wall against the mattress. The elastic outer walls can stretch to a height equal to the height of the inner wall to accommodate the thickness of the mattress. Importantly, the sidewalls, in conjunction with the top and bottom walls, provide a generally impermeable shield that completely surrounds the mattress, while accommodating mattresses of different thicknesses. The bottom wall includes an aperture for allowing insertion and removal of the mattress from the cover, and a fastener for opening and closing the aperture.

The present invention can be fabricated in a simple manufacturing process, wherein the top and bottom walls are cut to desired dimensions, the sidewalls are fabricated from an inner impervious wall and a stretchable outer wall that are joined at top and bottom edges, and the sidewalls are joined to edges of the top and bottom walls to form an expandable cover having an impervious shield that completely surrounds a mattress.

## BRIEF DESCRIPTION OF THE DRAWINGS

These and other important objects and features of the invention will be apparent from the following Detailed Description of the Invention taken in connection with the accompanying drawings in which:

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**FIG. 1** is a perspective view of the mattress cover of the present invention positioned on a mattress.

**FIG. 2** is a cross-sectional view of the present invention, taken along the line 2-2 of **FIG.**

10 **1.**

**FIG. 3** is a cross-sectional view of the present invention, taken along the line 3-3 of **FIG.**

**1.**

15 **FIG. 4** is a cross-sectional view of the present invention, showing the inner walls folded and snugly positioned to accommodate a mattress of a first thickness.

**FIG. 5** is a cross-sectional view of the present invention, showing the outer walls stretched and the inner walls extended to accommodate a mattress of a larger thickness.

## DETAILED DESCRIPTION OF THE INVENTION

The present invention relates to a generally impermeable mattress cover having expandable sidewalls to accommodate mattresses of different thicknesses. The cover of the present invention can be used on any type of mattress. By the terms “generally impermeable” or “impermeable” it is meant that the material is waterproof or water resistant, as well as resistant to other fluids and resistant to solids such as allergens and dust mites. The cover of the present invention comprises a generally impermeable top wall, a generally impermeable bottom wall, and sidewalls attached to the top and bottom walls. The sidewalls comprise a generally impermeable inner wall and an elastic outer wall joined at edges thereof to the top and bottom walls. The inner wall has a height greater than the outer wall when the outer wall is in a relaxed condition. The outer wall can be stretched to the height of the inner wall. The outer wall retains the inner wall neatly against the mattress to provide a uniform fit.

**FIG. 1** is a perspective view of the present invention. The cover **10** surrounds a mattress **20** to protect same from allergens, fluids, and other undesired spoils. The cover **10** comprises top wall **18**, bottom wall **19** and sidewalls **12**.

Importantly, top and bottom walls **18** and **19**, and sidewalls **12** of the present invention are made of a generally impermeable material. Sidewalls **12** and **14** are preferably formed from a two-part construction, as will hereinafter be described in greater detail, and are joined at edges thereof to top wall **18** and bottom wall **19** to provide a generally impermeable barrier that completely surrounds mattress **20**. Sidewalls **12** and **14** can be joined to top wall **18** and bottom wall **19** using any technique known in the art, such as stitching, ultrasonic welding, gluing, etc.

An aperture is provided on cover 10 to allow insertion and removal of mattress 20 from cover 10. A fastener, such as zipper 22, is used to close the cover. In a preferred embodiment of the present invention, zipper 22 is positioned proximal to a portion of the perimeter of bottom wall 19, and preferably near one end of the cover 10 in a C-shaped configuration. However, it is to be expressly understood that zipper 22 could be positioned at any desired location on cover 10 without departing from the scope of the present invention. It should be noted that zipper 22 is preferably manufactured to maintain a generally impermeable seal to allergens and fluids when closed. Any other fastener means for allowing access to the internal cavity defined by cover 10 and may be utilized with the present invention.

**FIG. 2** is a cross-sectional view of the present invention, taken along the line 2-2 of **FIG.**

1. Top wall 18 and bottom wall 19 are joined at edges 17 to sidewalls 12 of cover 10. Sidewalls 12 are formed of a two-part construction comprising outer walls 15 and inner walls 16 that are joined together at edges 17. Inner walls 16 comprise a material that is generally impermeable to allergens and fluids, preferably the same material as top wall 18 and bottom wall 19. The outer wall 15 is made of an elastic material that can be stretched. In a preferred embodiment of the present invention, the outer walls 15 are 12 inches in height in a relaxed position, and capable of being stretched to a height of 20 inches, while the inner walls 16 are 20 inches in height. Other heights, dimensions, and materials for the outer walls 15 and inner walls 16 are considered within the scope of the present invention.

Importantly, sidewalls 12 are expandable in height along the direction indicated generally by arrows C to allow the cover 10 to fit on mattresses of different thicknesses. When the outer

walls 15 are stretched, inner walls 16 extend vertically to also accommodate the mattress thickness while providing a generally impermeable enclosure around the mattress.

**FIG. 3** is a cross-sectional view of the present invention, taken along the line 3-3 of **FIG.**

1, showing the mattress and cover lengthwise. As shown in **FIG. 3**, sidewalls 12 are attached to top wall 18 and bottom wall 19 at edges 17, in the same manner as described with respect to **FIG. 2**. The sidewalls 12 are expandable along the direction generally indicated by arrows **D**, accommodating mattress 20 and allowing mattresses of different thicknesses to be covered by cover 10.

**FIG. 4** is a cross-sectional view of the present invention, showing the inner walls 16 and outer walls 15 positioned about a mattress of a first height  $h_1$ . Height  $h_1$  is purely illustrative in nature, but for purposes of describing the present invention,  $h_1$  could be approximately 12 inches, or the minimum height of sidewalls 12 when outer walls 15 are in a relaxed position. Of course, any height can be substituted for  $h_1$  without departing from the scope of the present invention. The outer walls 15 retain the generally impermeable inner walls 16 are neatly against the mattress 20. The inner walls 16 provide a generally impermeable layer that protects the mattress 20.

**FIG. 5** is a cross-sectional view of the present invention, showing the outer walls 15 stretched and the inner walls 16 extended to accommodate a mattress 20 having a larger height  $h_2$ . For purposes of illustration,  $h_2$  is approximately 20 inches. Additionally, inner walls 16 stretch to the same height as the outer walls 15 (*i.e.*, to approximately the height  $h_2$ ), and maintain a generally impermeable barrier around mattress 20.

Thus, as illustrated in **FIGS. 4-5** and described herein, the outer wall **15** of the sidewall **12** can be stretched to accommodate mattresses of different thicknesses. Concurrently, the inner wall **16** of sidewall **12** extends to accommodate such thicknesses while maintaining a generally impermeable barrier around the mattress. Any slack in the inner wall is covered and neatly retained by the elastic outer walls. This arrangement provides the distinct advantage of protecting mattresses from allergens, fluids, dust mites, etc., while allowing mattresses of different dimensions to be neatly covered.

In a preferred embodiment of the present invention, top wall **18**, bottom wall **19** and the inner wall **16** of side wall **12** are manufactured from a generally impermeable material, such as PROPORE, a water resistant, breathable polypropylene material manufactured by the Minnesota Mining and Manufacturing Company ("3M"). PROPORE and 3M are registered trademarks of the Minnesota Mining and Manufacturing Company. Of course, any other generally impermeable material known in the art can be utilized to form these walls.

The cover of the present invention can be fabricated in a simple manufacturing process. First, the top and bottom walls of the cover can be cut to desired dimensions from a sheet or roll of generally impermeable material. Then, the inner walls of the sidewalls can be cut to desired height, and the outer walls cut from a sheet or roll of elastic material. Next, the inner walls and outer walls can be joined at edges thereof, such as by stitching, to form the sidewalls of the cover. Finally, the sidewalls can then be attached to the edges of the top and bottom walls by stitching or other process.



Having thus described the invention in detail, it is to be understood that the foregoing description is not intended to limit the spirit and scope thereof. What is desired to be protected by Letters Patent is set forth in the appended claims.